It is hoped that during a period of postwar prosperity, these men will be given an opportunity to recoup some of their losses. They truly made a great contribution to military medicine.

There is another older group who have had many years of practice and have served in the Army in various specialized capacities. These men frequently show a complete change of attitude toward their practices. Often times they were men who worked tremendously hard for very long hours every day and now find themselves quite disinclined to go back to such a type of life. You will find these men more anxious to make some sort of arrangement that limits their time to a more reasonable period than that to which they were exposed before the war.

ON READJUSTMENTS IN CIVIL PRACTICE

The medical officer is no more amenable to regimentation as a result of his Army experience as he was before, perhaps less so. But he has seen the possibility of rendering good medical care by a species of group practice. The soldier has no pre-choice of position and actually it is well demonstrated in Army practice that it doesn't make a great difference, as it is so frequently stressed in its favor. The soldier takes whatever doctor is assigned to him. The assistant takes care of him, and the result so far as mortality and nobility are concerned speaks for themselves.

I think that it will result in the Army doctor on his return, being much more interested in the group practice in medicine, then he was before. The tendency to ally himself with other individuals who represent various specialties and practice in a way somewhat like he practiced in the Army, I think, will be seen increasingly in the country. The Army doctor needs some readjusting to normal peacetime life just as does the civil population, just as does the veteran in other categories. In general, his contribution to his country's welfare has been very great. Unselfishly and exceedingly capably done. There will be instances where he will be considerably put out by the records of his brother physicians who have stayed home. An understanding attitude will be necessary between them to prevent there arising a group of service doctors as distinguished from those who did not serve. This would seem to be unfortunate in the light of the practice of medicine for the future.

You will find in general when your Army doctor comes back, he will be the same man he was before, however, eager to serve, anxious to get along, and very happy never to leave his home town again.

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COMPARATIVE PATHOLOGY OF NATIVE CHINESE AND AMERICANS: SOME OBSERVATIONS*

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THE present global war has stimulated much interest in regional or geographic pathology. Observations, based on seven hundred autopsies performed in the American Hospital for Chinese Refugees, Shanghai, China, together with a large amount of surgical pathology in several hospitals for Chinese, and a review of much general clinical material in the Chinese population of the same city, revealed a striking contrast in frequency of various pathological conditions, between that population and the population of the United States.

Tuberculosis was the outstanding disease entity. There was very little hospitalization for pulmonary tuberculous patients; therefore post mortem material was minimal. However, in all hospitals which served the geenral Chinese public, the most frequent tissue diagnosis, even on surgical material, was tuberculosis. These specimens included lesions of almost every part of the body and were usually complications of the primary tuberculous complex.

The *acute infectious diseases of childhood* were comparatively infrequent considering the crowded war conditions. However, the acute enteric diseases, chiefly typhoid fever, bacillary dysentery, and cholera were serious causes of morbidity and mortality.

CLINICAL MATERIAL IN SHANGHAI AREA

A survey of the clinical material in the Shanghai area revealed that *amebic dysentery* was relatively infrequent. Routine stool analyses in several laboratories showed an incidence of ameba histolylica below 5 per cent. In seven hundred autopsies on Chinese refugees, twelve showed amebic colitis. Three of these had perforations of the colon and three had abscesses in the liver.

Typhus fever in Shanghai was interesting. In 1937, following the outbreak of the Sino-Japanese incident, a few sporadic cases were seen. From 1937 to 1942 the number of cases about doubled each year. However, in 1943, when we expected a correspondingly serious epidemic, for some unexplained reason there was hardly a case. Mortality among the Chinese, infected with typhus fever was below two per cent, while Europeans and Americans presented a forty per cent death rate when attacked by this disease.

Benign and malignant tertian malaria was a common cause of morbidity. In the surgical pathology material, malarial spleens were frequently seen, having been removed because of lacerations and rupture due to trauma. There was a rule in the Shainghai police force that an offender, who offered resistance, should not be struck below the neck, because of the frequency of ruptured malarial spleens by even quite minor blows.

In all types of pathological material, and clinically, the complications of the venereal diseases were seen. Gonorrheal epididymitis was relatively frequent, but joint complications appeared to be rare. Syphilitic aortitis and aneurisms were seen clinically and at post mortem. Sudden death, even among the coolies, was occasionally due to closure of the coronary ostia. Lymphopathia venereum was common, buboes were frequent, and, while rectal strictures occurred, I was particularly impressed with the large number of granulomatous masses in and about the rectum and anus, that occurred in many women with this disease.

Leprosy, as seen in a ninety patient leprosarium, showed, in addition to the usual manifestations, a predilection for the scalp. A great loss of scalp hair thus occurred, except for a tuft along each temporal artery, thereby producing a configuration ont commonly seen in Caucasians with this disease.

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In the seven hundred autopsies on Chinese refugees, not one instance of well developed *atherosclerosis* was noted. Likewise not one death due to coronary sclerosis with myocardial infarction was recorded. This low incidence of atherosclerosis in the middle and low class Chinese appeared to be in accord with the many reports ascribing this disease to a dietary basis. The cholesterol containing foods, chiefly animal fats, are eaten very little by these groups of Chinese people. However, the wealthier Chinese who can afford to eat these foods do develop atherosclerosis and coronary heart disease as shown by study of clinical material. Diabetes and diabetic gangrene was not seen in any of the material studied.

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* Read before the Section on Pathology and Bacteriology at the Seventy-fourth Annual Session of the California Medical Association, Los Angeles, May 6-7, 1945.

There was a complete absence of *cholelithiasis* in the seven hundred autopsies. This observation was substantiated by the rarity with which gall bladders were seen in the surgical pathology material. Cholelithiasis did not appear to be a disease of the middle and low class Chinese. However, a further study showed that the few cases that were noted were among the wealthier Chinese, and again these were the ones whose diets simulated the foreign type with a greater amount of cholesterol containing foods than was eaten by the lower classes. In the seven hundred autopsies there were many instances of typhoid fever and in these gall bladder ulcerations were seen, three with perforation. Observation on the Chinese people seemed to show that infection of the gall bladder alone would not produce stones. It was impossible to tell whether the cases seen in the wealthier groups had had infection of the gall bladder. However, it appeared that probably a high cholesterol intake was the prominent factor in the development of cholelithiasis in these people.

Bright's Disease was not observed in the seven hundred autopsies. This finding was substantiated by the occurrence of only a few scarred kidneys, and they were shown to be due to pyelonephritis associated with tuberculous or other urinary tract infections. The absence of glomerular nephritis was probably associated with the rare occurrence of scarlet fever and similar acute diseases. The absence of nephrosclerosis was associated with the low incidence of hypertensive disease. In the same material there was not a typical hypertensive heart. A study of clinical material, in the same area, revealed the hypertensive disease was practically unknown in the middle and lower class Chinese. However, among Chinese bankers, lawyers, doctors, business men, and officials the disease did occur and its fatal complications were frequently seen. The relationship of the rice diet to hypertension is interesting. All classes of Chinese eat large amounts of rice, yet, there is the difference in frequency of hypertension among the classes of the population. Is there a particular virtue in the rice or is some other factor eliminated in certain rice diets? I was impressed with the latter view. Also, there are probable hereditary and neurogenic factors. In a Japanese concentration camp we observed a general lowering of blood pressure in the inmates. After a few months of diet consisting largely of rice, with general weight loss, most systolic pressures were below 120 mm. Hg. even though many said they had been running relatively high blood pressure for a long time. Lessened activity, definite routine, including specified hours of sleep, and more or less resignation to the inevitable, also seemed to be important factors in the general lowering of the blood pressure.

The various types of *vascular tumors* were frequently seen. Telangiectatic skin lesions were very common as were subcutaneous and deep cavernous hemantiomata. Cystic hygromas of the neck were seen and smaller lymphangiomata of the extremities and body were not uncommon. Many of these became infected through various needling practices and presented complicated inflammatory structures.

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Sarcomas of all kinds and locations were common. Many instances of fibrosarcomas of the feet and legs come to mind. Massive myxosarcomas and chondromyxosarcomas were seen. Lymphosarcomas, especially reticulum cell in type, was especially common and occurred often in nasopharynx and neck. Clinically, the differential diagnosis was important because of the frequent occurrence of tuberculous adenitis. *Hodgkin's disease* was not seen in any of the material studied. Several *leucemias* were observed and the majority of these were of the acute type, but chronic myelogenous and chronic lymphatic types were seen.

Nevi are very common among the Chinese, many of them of the hairy type. However, in both the autopsy and surgical material, melanomas were not recorded except for two instances of choroid melanomas of the eye. One might surmise that in addition to being of brunette type, the relatively clear skins of the Chinese, the loose type of clothing, and the lessened demands for such practices as shaving may have some influence on the rare occurrence of these malignant tumors.

* * *

Carcinoma was varied in occurrence. Cancer of the lip was hardly seen. Probably the old custom of use of water-cooled pipes and pipes with very long stems may be a factor. Bronchogenic carcinoma was not seen in the seven hundred autopsies but a small number of cases were studied elsewhere. One was impressed with the low frequency as compared to this country.

Carcinomsa of the nasopharynx and the accessory sinuses were common adn may be related to the frequency of sinusitis and nasopharyngeal infections among the Chinese. The Chinese people, in the Shanghai area, rarely have artificial heating even in the coldest of winter weather.

Carcinoma of the esophagus was frequently seen and appeared to be associated with the custom of taking all food and drink as hot as could be tolerated.

Carcinomas of the stomach were seen in the older age group. Likewise papillomas and carcinomas of the large intestine were noted. In the seven hundred autopsies there was a fair series of schistosoma japanicum involvement of the large intestine, and in three of these, cancer of the colon had developed in hyperplastic papillomatous areas of the irritated mucosa.

Carcinoma of the penis was a common tumor. The high incidence of phimosis, with retained secretions and infections, appeared to be the important factor. Circumcision is not practiced among the Chinese.

In the postmortem material available on the middle and low class Chinese there was not a typical peptic ulcer of the stomach of duodenum. However, this disease was found in Chinese middle school and university students and in the business and professional classes, but altogether much less frequently than in this country.

In Chinese women carcinoma of the cervix is very common. Many more of them were in women under thirty years of age than is seen in this country. This might be associated with the relative early age of child bearing as compared with our population. Carcinoma of the breast was the next most common cancer in the Chinese women and seemed to occur in those who had borne children. The relationship to lactation was not determined.

Much interest has developed in the relative frequency of *carcinoma of the liver* in the Chinese. In the city of Shanghai many cases were observed and the frequency seemed to be as great as the reported incidence in other Chinese areas. The Shanghai Chinese do not have clonorchis sinensis infestation of the liver, yet cancer of the liver appeared to be as common among them as in the Canton Chinese, where the incidence of clonorchiasis reaches as much as seventy-five per cent of the population. The cases observed in the Shanghai Chinese did not have schistosoma infestation and the schistosoma patients did not happen to have cancer of the liver. In Shanghai we were of the opinion that parasitic infestations were probably not of importance in the etiology of primary carcinoma of the liver. Some of the hepatic cancers were associated with portal cirrhosis and some were not. Portal cirrhosis was fairly common and usually was not on an alcoholic basis. Fatty livers were seen in children and adults with severe bacillary dysentery and some other acute infections. Probably long standing dietary deficiency was also a factor. We were in the process of studying the

relationship of this type of fatty liver to protal cirrhosis when the war interfered.

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Observations concerning the occurrence of *benign hyperplasia of prostate* in Chinese men seems to be variable. Several urologists have stated that they have found this condition in Chinese in this country. In the seven hundred autopsies on Chinese refugees there was not one instance. In a special study of surgical material in several hospitals in Shanghai only three cases were found. There was no transurethral resection material, and several urologists in the city stated that they had not had enough cases to become familiar with the disease. No adequate reason for the apparent low occurrence of benign hyperplasia of the prostate in the typical Chinese population could be elicited.

Leiomyomas of the uterus occurred in all classes of the Chinese women but appeared to be much less common than in this country. In the seven hundred autopsies there were only four instances of very small tumors. In routine surgical pathology material a few fibroids were seen but not nearly as frequently as is seen in any pathological material here. Again no adequate reason for this low incidence could be found. In contrast was the very common occurrence of ovarian tumors, chiefly of the cystic types, some of which were of extreme size.

IN CONCLUSION

In conclusion, attention is again called to the contrast in frequency of occurrence of many pathological conditions between the Chinese in their natural environment and the Americans. Some of the factors responsible for the differences may be summarized as follows:

1. Differences in racial immunity as regards susceptibility and resistance to infection.
2. Difference in customs and habits of life.
3. Dietary differences.
4. Hereditary differences.

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CRUSHING INJURIES WITH RENAL FAILURE*

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THE Crush Syndrome occurs following massively necrotizing injuries, usually to the extremities, with destruction of muscle and commonly results in the fatal suppression of renal function. It has been observed frequently following air raids, when individuals have been pinned beneath heavy debris. It has emerged from the war as a well recognized clinical entity. There is now a sizable literature in English pertaining to it. Although it had been described sporadically as a consequence of civilian injury in a few foreign papers, certainly it had been overlooked, or not reported, here or in Britain, until the devastating "Blitz" of large communities in England during 1940-41. It was then that the clinicians pointed the way to substantiative animal experimentation. Until then, and for reasons now evident, the experimentalists had not produced the condition in their extensive studies of the pathologic physiology of injury. The subject is still a timely one, inasmuch as air raids are continuing (with the enemy bearing the brunt of the attacks) to such an extent that more explosives may be delivered in a single raid than fell in the entire period of the "Blitz." Then, over 70 authentic cases of Crush Syndrome were reported and it is estimated that in a raid of a center of population, about 5 per cent of casualties may be of this type.

We must be alert to the possibility of the development of the syndrome in future civil practice in mining, traffic, industrial, mob stampede accidents, etc., for only in this way can it be averted. It is probable that many cases have been missed because exclusive attention was paid to the surgical aspects of the severe lesions.

The author has observed the condition in civilians in England and herewith reports two cases in United States Army personnel, having ethiologic mechanisms which vary from the usual mode of trauma.

RELATION TO SHOCK AND EXTRA-RENAL AZOTEMIA

The entire conception of "shock" from a practical, clinical viewpoint has undergone revision. It is now accepted that many types of trauma,—burns, lacerations, hemorrhage, infliction of pain, crushing, freezing, frightening, etc., all yield specific results, but that they all have in common certain clinical manifestations which are called "shock" (a word which should always be enclosed in quotation marks) and are characterized by pallor, sweating, etc. These manifestations are conspicuous and are common to them all, but they are only parts of diverse processes, activated by these different traumata. The conception of "shock" as an entity, with cause and mechanism, has done more harm than good. Each specific trauma has its specific response, although of course, two or more may co-exist.

TABLE 1.—*Factors in the Production of Clinical "Shock"*

(1)	Fright (Emotional "shock")
(2)	Post-Traumatic Hypertension
(3)	Effects of tissue trauma
(4)	Neurogenic "shock"
	(a) Vasovagal
	(b) Brain Injury
(5)	Oligemic "shock"
	(a) Blood Loss
	(b) Plasma Loss
(6)	*Crush Syndrome* (Renal failure)
(7)	Blast Injuries
(8)	Effects of Toxic Gases
(9)	Effects of Anesthesia
(10)	Circulatory Collapse—Mechanical Causes
	(a) Fat Embolism
	(b) Pulmonary Embolish
	(c) Coronary Thrombosis
(11)	Toxemic "shock"
	Infection—Bacterial toxins
(12)	Dehydration Collapse (may play a part in war injuries) diarrhea, vomiting, etc.

Then too, renal function may be impaired as a result of a disturbed normal physiologic balance in surgical situations where the element of trauma does not play a primary part. When this factor becomes involved in cases of severe injury, the situation is further complicated. Extra-renal azotemia (the elevation of the non-protein nitrogenous blood elements without primary kidney damage) may occur as a result of one of the following:

1. A drop in blood pressure which affects the hydrostatic pressure in the glomerulus and consequently lowers the potential for glomerular filtration. Under spinal anesthesia, for instance, the volume of urine diminishes directly with the fall in blood pressure and ceases altogether with systolic pressure has reached 70 mns. of mercury.

2. Hypochloremia and hyponatremia may occur with persistent vomiting, gastrointestinal fistulae, diarrhea, rhinorrhea, excess sweating, evaporation from denuded epithelium, and polyuria. These result in the loss of both sodium and chloride and it is probable that urea is retained to maintain osmotic pressure. With sodium loss, regardless of fluid intake, there is a diminution in blood plasma. With chloride loss, there is a concomitant loss of fluids. The loss of either also upsets the acid base balance. Kidney function is diminished.

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